

University Teaching:

TCU, 1971

Teaching Assistant, General Biology Laboratory

Tulane University, 1972-1974

Teaching Assistant, Genetics

Teaching Assistant, Developmental Biology Laboratory

Lecturer, Chemical Embryology

University of Southern California School of Medicine, 1979-1981

Proctor, Medical Biochemistry, Year I Discussion Group

Lecturer, Genetic Engineering-Medical Biochemistry

Lecturer, Graduate General Biochemistry

Course organizer, Lecturer, Molecular Mechanisms of Gene Expression and Cellular Differentiation

Research Support:

Helen Hay Whitney Foundation, Postdoctoral Fellowship, 1976-1979

American Cancer Society, Institutional Research Grant, 1980-1981

National Institute of Child Health and Human Development, NIH, RO-1 Research Grant, 1980-1983

Research support for multiple research projects from various corporations, including Phillips Petroleum, Diamond Shamrock, Hoffmann La Roche, Eli Lilly, and Novartis/Ciba-Geigy, 1982-1998

Scientific Review:

Grants: NIH Biomedical Sciences Study Section, 1982-1983

Journals: Proceedings National Academy of Sciences, USA, J.

Neurochemistry, J. Biological Chemistry, Analytical Biochemistry,

Neuropharmacology, J. Pharmacology and Experimental Therapeutics, J.

Molecular Neuroscience, Cell, Genomics, Nucleic Acids Research

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Publications:

- M.M. Harpold and S.P. Craig. (1975) A possible mechanism for regulation of mitochondrial RNA polymerase during development of the sea urchin embryo. *J. Cell Biol.* 67, 157.
- M.M. Harpold and S.P. Craig. (1977) The evolution of repetitive DNA sequences in sea urchins. *Nucleic Acids Res.* 4, 4425-4437.
- M.M. Harpold and S.P. Craig. (1978) The evolution of nonrepetitive DNA sequences in sea urchins. *Differentiation* 10, 7-11.
- M.M. Harpold, P.R. Dobner, R.M. Evans, and F.C. Bancroft. (1978) Construction and identification by positive hybridization-translation of a bacterial plasmid containing a rat growth hormone structural gene sequence. *Nucleic Acids Res.* 6, 2039-2053.
- M.A. Innis, M.M. Harpold, and D.L. Miller. (1979) Amplification of alpha-fetoprotein complementary DNA by insertion into a bacterial plasmid. *Arch. Biochem. Biophys.* 195, 128-135.
- M.M. Harpold, P.R. Dobner, R.M. Evans, F.C. Bancroft, and J.E. Darnell. (1979) The synthesis and processing of a nuclear RNA precursor to rat pre-growth hormone messenger RNA. *Nucleic Acids Res.* 6, 3133-3144.
- H. Soreq, M.M. Harpold, R. Evans, J.E. Darnell, and F.C. Bancroft. (1979) Rat growth hormone gene: intervening DNA sequences separate the mRNA regions. *Nucleic Acids Res.* 6, 2471-2482.
- M.M. Harpold, R.M. Evans, M. Salditt-Georgieff, and J.E. Darnell. (1979) Production of mRNA in Chinese hamster cells: the relationship of the rate of synthesis to the cytoplasmic concentration of nine specific mRNA sequences. *Cell* 17, 1025-1035.
- M. Salditt-Georgieff, M. Harpold, S. Cheng-Kiang, and J.E. Darnell. (1980) The addition of 5' cap structures occurs early in hnRNA synthesis and prematurely terminated molecules are capped. *Cell* 19, 69-78.
- H. Soreq, M. Harpold, M. Wilson, and J.E. Darnell. (1980) Rate of synthesis and concentration of specific mRNA sequences in cultured Chinese hamster ovary cells compared to liver cells. *Biochem. Biophys. Res. Commun.* 92, 485-491.
- M. Salditt-Georgieff, M. Harpold, S. Sawicki, J. Nevins, and J.E. Darnell. (1980) The addition of poly(A) to nuclear RNA occurs soon after RNA synthesis. *J. Cell Biol.* 86, 844-848.
- M.M. Harpold, M. Wilson, and J.E. Darnell. (1981) Chinese hamster polyadenylated mRNA: relationship to nonpolyadenylated sequences and relative conservation during mRNA processing. *Mol. Cell Biol.* 1, 188-198.
- M. Salditt-Georgieff, M. Harpold, M. Wilson, and J.E. Darnell. (1981) Large hnRNA has three times as many 5' caps as poly(A) segments and most caps do not enter polyribosomes. *Mol. Cell Biol.* 1, 179-187.

- K.A. Stauderman, L.S. Mahaffy, M. Akong, G. Velicelebi, L.E. Chavez-Noriega, J.H. Crona, E.C. Johnson, K.J. Elliott, A. Gillespie, R.T. Reid, P. Adams, M.M. Harpold and J. Corey-Naeve. (1998) Characterization of human recombinant neuronal nicotinic acetylcholine receptor subunit combinations $\alpha 2\beta 4$, $\alpha 3\beta 4$, and $\alpha 4\beta 4$ stably expressed in HEK293 cells. *J Pharmacol.Exp. Ther.* 284, 777-789.
- B. Lang, S. Waterman, A. Pinto, D. Jones, F. Moss, J. Boot, P. Brust, M. Williams, K. Stauderman, M. Harpold, M. Motomura, J.W. Moll, A. Vincent, J. Newsom-Davis. (1998) The role of autoantibodies in Lambert-Eaton myasthenic syndrome. *Ann. NY Acad. Sci.* 841, 596-605.
- A. Pinto, F. Moss, B. Lang, J. Boot, P. Brust, M. Williams, K. Stauderman, M. Harpold, and J. Newsom-Davis. (1998) Differential effect of Lambert-Eaton myasthenic syndrome immunoglobulin on cloned neuronal voltage-gated calcium channels. *Ann. NY Acad.Sci.* 841, 687-690.
- A. Pinto, S. Gillard, F. Moss, K. Whyte, P. Brust, M. Williams, K. Stauderman, M. Harpold, B. Lang, J. Newsom-Davis, D. Bleakman, D. Lodge, and J. Boot. (1998) Human autoantibodies specific for the $\alpha 1A$ calcium channel subunit reduce both P-type and Q-type calcium currents in cerebellar neurons. *Proc. Natl. Acad. Sci. USA* 95, 8328-8333.
- M.M. Harpold, M.E. Williams, P.F. Brust, K. Stauderman, A. Urrutia, E.C. Johnson, and M. Hans. (1998) Human neuronal voltage-gated calcium channels: splice variants, subunit interactions and subtypes. In: R.W. Tsien, J-P Clozel, and J. Nargeot, eds. *Low-voltage-Activated T-Type Calcium Channels*. Adis International, Chester, U.K., 218-228.
- N.C. Day, S.G. Volsen, A.L. McCormack, P.J. Craig, W. Smith, R.E. Beattie, P.J. Shaw, S.B. Ellis, M.M. Harpold, and P.G. Ince. (1998) The expression of voltage-dependent calcium channel beta subunits in human hippocampus. *Brain Res. Mol. Brain Res.* 60, 259-269.
- L. Daggett, E.C. Johnson, M.A. Varney, F.F. Lin, S.D. Hess, C.R. Deal, C. Jachec, C.C. Lu, J.A. Kerner, G.B. Landwehrmeyer, D. Standaert, A.B. Young, M.M. Harpold and G. Velicelebi. (1998) The human N-methyl-D-aspartate receptor 2C subunit: genomic analysis, distribution in human brain, and functional expression. *J Neurochem.* 71, 1953-1968.
- M.P. Skupski, M. Booker, A. Farmer, M. Harpold, W. Huang, J. Inman, D. Kiphart, C. Kodira, S. Root, F. Schilkey, J. Schwertfeger, A. Siepel, D. Stamper, N. Thayer, R. Thompson, J. Wortman, J.J. Zhuang, and C. Harger. (1999) The Genome Sequence DataBase: towards an integrated functional genomics resource. *Nucleic Acids Res.* 27, 35-38.
- M.E. Williams, M.S. Washburn, M. Hans, A. Urrutia, P.F. Brust, P. Prodanovich, M.M. Harpold, and K.A. Stauderman. (1999) Structure and functional characterization of a novel human low-voltage activated calcium channel. *J Neurochem.* 72, 791-799.

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M. Hans, S. Luvisetto, M.E. Williams, M. Spagnolo, A. Urrutia, A. Tottene, P.F. Brust, E.C. Johnson, M.M. Harpold, K. Stauderman, and D. Pietrobon. (1999) Functional consequences of mutations in the human α_{1A} calcium channel subunit linked to Familial Hemiplegic Migraine. *J Neurosci.* 19, 1610-1619.

M. Hans, A. Urrutia, C. Deal, P.F. Brust, K. Stauderman, S.B. Ellis, M.M. Harpold, E.C. Johnson, and M.E. Williams. (1999) Structural elements in domain IV that influence biophysical and pharmacological properties of human α_{1A} -containing high-voltage-activated calcium channels. *Biophys. J.* 76, 1384-1400.

R.A. Cardoso, S.J. Brozowski, L.E. Chavez-Noriega, M. Harpold, C.F. Valenzuela, and R.A. Harris. (1999) Effects of ethanol on recombinant human neuronal nicotinic acetylcholine receptors expressed in *Xenopus* oocytes. *J Pharmacol. Exp. Ther.* 289, 774-780.

B.W.S. Sobral and M.M. Harpold. (1999) Bioinformatics and neuroscience in the post-genomic era. In: W.E. Crusio and R.T. Gerlai, eds. *Handbook of Molecular-Genetic Techniques for Brain and Behavior Research.* Elsevier Science, N.Y.

E.A. Ertel, K.P. Campbell, M.M. Harpold, F. Hofmann, Y. Mori, E. Perez-Reyes, A. Schwartz, T.P. Snutch, T. Tanabe, L. Birnbaumer, R.W. Tsien, and W.A. Catterall. (2000) Nomenclature of Voltage-Gated Calcium Channels. *Neuron* 25, 533-535.

Patents:

(Issued US Patents only; not listed: Filed, unissued US Patents; filed, unissued, or issued foreign patents.)

S.B. Ellis and M.M. Harpold. (1988) Nucleic acid probes for prenatal sexing. *US Patent* 4769319.

D.W. Stroman, P.F. Brust, S.B. Ellis, T.R. Gingeras, J.F. Tschopp, and M.M. Harpold. (1989) Methanol inducible genes obtained from *Pichia* and methods of use. *US Patent* 4808537.

D.W. Stroman, P.F. Brust, S.B. Ellis, T.R. Gingeras, J.F. Tschopp, and M.M. Harpold. (1989) Regulatory region for heterologous gene expression in yeast. *US Patent* 4855231.

D.W. Stroman, G.T. Sperl, J.M. Cregg, and M.M. Harpold (1989) Transformation of yeasts of the genus *Pichia*. *US Patent* 4879231.

J.F. Tschopp, M.M. Harpold, J.M. Cregg, and R.G. Buckholz. (1990) Yeast production of hepatitis B surface antigen. *US Patent* 4895800.

S.B. Ellis and M.M. Harpold. (1990) Nucleic acid probes for prenatal sexing. *US Patent* 4960690.

M.M. Harpold and S.B. Ellis. (1994) Acetylcholine receptor compositions and cells transformed with same. *US Patent* 53699028.

S.D. Jay, S.B. Ellis, M.M. Harpold, and K.P. Campbell. (1995) Calcium channel compositions and methods. *US Patent* 53866025.

M.M. Harpold and P.F. Brust. (1995) Assay methods and compositions useful for measuring the transduction of an intracellular signal. *US Patent* 5401629.

S.B. Ellis, M.E. Williams, A. Schwartz, R. Brenner, and M.M. Harpold. (1995) Calcium channel alpha 2 subunit DNAs and cells expressing them. *US Patent* 5407820.

M.M. Harpold, S.B. Ellis, M.E. Williams, D.H. Feldman, A.F. McCue, and R. Brenner. (1995) Assays for agonists and antagonists of recombinant human calcium channels. *US Patent* 5429921.

M.M. Harpold and P.F. Brust. (1995) Assay methods and compositions for detecting and evaluating the intracellular transduction of an extracellular signal. *US Patent* 5436128.

S.B. Ellis, M.E. Williams, A. Schwartz, J. Sartor, R. Brenner, and M.M. Harpold (1997) Cells expressing calcium channel alpha 2 subunit-encoding DNA, optionally with a reporter gene for screening assays. *US Patent* 5618720.

M.J. Hagenson, K.A. Barr, D.W. Stroman, F.H. Gaertner, M.M. Harpold, and R.D. Klein. (1997) *Pichia pastoris* linear plasmids and DNA fragments thereof. *US Patent* 5665600.

M.A. Akong, M.M. Harpold, G. Velicelebi, and P. Brust. (1997) Automated analysis equipment and assay method for detecting cell surface protein and/or cytoplasmic receptor function using same. *US Patent* 5670113.

S.B. Ellis, M.E. Williams, M.M. Harpold, A. Schwartz, and R. Brenner. (1997) Probes and assays for calcium channel alpha 2 subunit-encoding nucleic acids. *US Patent* 5686241.

S.B. Ellis, M.E. Williams, M.M. Harpold, J. Sartor, and R. Brenner. (1998) Calcium channel alpha 2 subunit polypeptides. *US Patent* 5710250.

S.D. Jay, S.B. Ellis, M.M. Harpold, and K.P. Campbell. (1998) Recombinant production of mammalian calcium channel gamma subunits. *US Patent* 5726035.

M.M. Harpold, S.B. Ellis, M.E. Williams, D.H. Feldman, A.F. McCue, and R. Brenner. (1998) Human calcium channel compositions and methods. *US Patent* 5792846.

K.J. Elliott, S.B. Ellis, and M.M. Harpold. (1998) DNA and mRNA encoding human neuronal nicotinic acetylcholine receptor alpha-2 subunit and cells transformed with same. *US Patent* 5801232.

K.J. Elliott, S.B. Ellis, and M.M. Harpold. (1998) Human neuronal nicotinic acetylcholine receptor and cells transformed with same DNA and mRNA encoding an—subunit of. *US Patent* 5837489.

M.M. Harpold, S.B. Ellis, M.E. Williams, D.H. Feldman, A.F. McCue, and R. Brenner. (1998) Human calcium channel alpha₁, alpha₂, and beta subunits and assays using them. *US Patent* 5846757.

